Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Promoting Telehealth for Low-Income Consumers	)	WC Docket No. 18-213

COMMENTS OF HUGHES NETWORK SYSTEMS, LLC

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SUMMARY

Hughes Network Systems, LLC ("Hughes") supports the Federal Communications Commission's ("Commission") efforts to develop a Pilot Program utilizing Universal Service Fund ("USF") resources that will facilitate testing of multiple delivery methods for high-quality healthcare direct to patients' homes through the provision of telehealth services in conjunction with the promotion of broadband connectivity.

Hughes agrees with the Commission's proposed structure for the Pilot Program to provide up to 20 healthcare providers up to $5 million each in USF for supported broadband services to be used to deliver connected care services to eligible low-income patients. However, given the limited duration, scope, and financial resources proposed for the Pilot Program, Hughes urges the Commission to narrow the Program's parameters and select projects that encourage and facilitate broadband adoption, to ensure a robust study on the technological requirements for the provision of at-home telehealth services.

Hughes urges the Commission to modify the structure of the program to ensure that it produces the greatest possible illustrative value by: 1) allocating at least one project slot for each broadband technology that applies; 2) prioritizing projects that focus on broadband adoption rather than new build-out; 3) eliminating the eligible telecommunications carrier ("ETC") requirement; 4) directing the majority of projects to rural and tribal proposals; and 5) deferring the adoption of performance standards to future funding initiatives.

Through these modifications to the Pilot Program, the Commission will garner valuable insight into the connectivity required by telehealth systems, which can then inform the larger scale, long-term USF initiatives to facilitate connected care everywhere.

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COMMENTS OF HUGHES NETWORK SYSTEMS, LLC

I. INTRODUCTION

Hughes Network Systems, LLC ("Hughes") submits these comments in response to the Federal Communications Commission's ("Commission") notice of inquiry seeking inputs on the creation of the "Connected Care Pilot Program" ("Pilot Program") to support the delivery of broadband-enabled healthcare services to low-income recipients outside of traditional brick-and-mortal healthcare facilities.[1] Hughes supports the Commission's efforts to develop a Pilot Program utilizing Universal Service Fund ("USF") resources that will facilitate testing of multiple delivery methods for high-quality healthcare direct to patients' homes through the provision of telehealth services in conjunction with the promotion of broadband connectivity. As discussed herein, Hughes urges the Commission to modify the structure of the program to ensure that it produces the greatest possible illustrative value by: 1) allocating at least one project slot for each broadband technology that applies; 2) prioritizing broadband adoption over new build-out; 3) eliminating the eligible telecommunications carrier ("ETC") requirement; 4) directing the majority of projects to

[1] *Promoting Telehealth for Low-Income Consumers*, Notice of Inquiry, FCC 18-112 (2018) ("Telehealth NOI").

rural and tribal proposals; and 5) deferring the adoption of performance standards to future funding initiatives. Through these modifications, the Commission can ensure the development of a more robust Pilot Program that will yield valuable insight into the connectivity needed in order to facilitate connected care everywhere.

II. BACKGROUND

Hughes is the largest provider of satellite broadband services in the United States and globally, with approximately 1.3 million subscribers across the Americas. Hughes provides its broadband service through a three geostationary orbit ("GSO"), Ka-band satellite constellation over the United States, which provides ubiquitous coverage of the continental United States, southeastern Alaska, Puerto Rico, and the U.S. Virgin Islands.

In March 2017, Hughes launched HughesNet Gen5 service throughout the United States. HughesNet Gen5 is Hughes' fifth generation high-speed satellite Internet service that offers residential consumers baseline speeds of 25 Mbps down, 3 Mbps up, while enterprise customers can opt for higher speed packages of 55 Mbps down, 5 Mbps up. The Gen5 service also eliminates hard data caps for satellite broadband subscribers.[2] With the introduction of its Gen5 service, Hughes has experienced a 20 percent decrease in North American retail consumer churn, demonstrating that customers are trying the service and staying with it, even when there are alternative broadband services available.[3]

Hughes is currently in the process of constructing its next generation, Commission-licensed, Ultra-High Density Satellite, EchoStar XXIV, which will provide service throughout the

[2] For more information on HughesNet Gen5, visit: https://www.hughesnet.com/about/hughesnet-gen5.
[3] EchoStar Second Quarter 2018 Investor Call (August 7, 2018).

Americas at speeds of 100 Mbps or more.[4] EchoStar XXIV is being constructed by Space Systems Loral and is expected to be launched and begin commercial service in 2021.[5]

Satellite broadband services, such as HughesNet, are an essential component to the ubiquitous delivery of broadband services throughout the United States, and particularly for ensuring that critical services, like connected care, are as easily accessible in rural, remote, and tribal regions of the country as in urban centers. Satellite broadband provides three important attributes that are not available in terrestrial solutions:

1. Wide area coverage: GSO satellites can provide nationwide coverage with minimal ground infrastructure. Satellite network coverage is available from the day the satellite network is put into commercial service; all that is required for consumer connectivity is the installation of a small antenna, which can be installed in a matter of days.[6]

2. Reliability: Since GSO satellites are located 22,300 miles above the earth's equator, and non-geostationary satellite orbit ("NGSO") satellites are 435 to 6,200 miles above the earth, these networks are not as vulnerable to natural or manmade disasters as their terrestrial counterparts.[7] As a result, satellites make up a key component in critical infrastructure monitoring, such as for pipelines. Moreover, in cases of extreme weather conditions, satellites can reallocate power from beams in different regions of the country to those that require more power to ensure that signals continue to get through.[8] It is this reliability feature that makes satellites critical for emergency response services and incredibly beneficial for the delivery of telehealth services.[9]

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[4] Press Release, Hughes Selects Space Systems Loral to Build Next-Generation Ultra High Density Satellite (Aug. 9, 2017), *available at* https://www.echostar.com/en/Press/Newsandmedia/Hughes%20Selects%20Space%20Systems%20Loral%20To%20Build%20Next-Generation%20Ultra%20High%20Density%20Satellite.aspx.

[5] *Ibid.*

[6] *See e.g.* https://www.hughesnet.com/frequently-asked-questions

[7] *See e.g.* Ark-Tex Council of Governments Press Release, "More Resilient with Broadband Satellite," Nov. 2016, *available at* https://www.hughes.com/sites/hughes.com/files/2017-03/resilient%20911.pdf

[8] *See e.g.* Jim Petranovich, "Mitigating the Effect of Weather on Ka-band High Capacity Satellites," ViaSat, Mar. 2012, *available at* https://www.viasat.com/sites/default/files/media/documents/mitigating_the_effect_of_weather_on_ka-band_high_capacity_satellites.pdf

[9] *See generally* Comments of Hughes Network Systems, LLC, PS Docket 17-344, Jan. 22, 2018.

3. Cost-Efficiency: Satellite broadband does not require a costly fiber build-out to each home, business, or cell tower in order to provide service, making it substantially more affordable to construct. While there is a considerable upfront cost to building and launching a satellite, there is only a limited terrestrial infrastructure that is needed to support the network in order to provide nationwide service.[10] This makes the cost of deploying a satellite broadband network, especially for the purposes of serving rural and remote portions of the country, more cost-effective than the build-out of a terrestrial network.

Satellite networks play a critical role in ensuring that there is sufficient broadband connectivity to enable telehealth services to meet the escalating healthcare demands of Americans. Satellite broadband offers connectivity now to communities that are unserved and underserved by traditional terrestrial carriers, and where fiber-based networks do exist, offers a layer of redundancy in case of network outages through "path diversity".

The broad coverage of GSO satellites has made satellite service the ideal service provider for dispersed networks, such as retail and hotel chains, and gas stations, for decades. The experience satellite providers have gained operating these dispersed networks also makes them ideal operators for the provision of new integrated, digital health networks, which are even more Cloud-dependent. Satellite operators, such as Hughes, have experience in designing Virtual Private Networks ("VPNs") that can protect sensitive patient information while offering nationwide integrated solutions for hospital and other primary care networks. Moreover, the "always on" nature of satellite broadband ensures that patients will always be able to connect with their healthcare providers, even in rural and remote portions of the country and following extreme weather events.

[10] For instance, EchoStar XIX is supported by only 18 gateways in the United States.

III. DISCUSSION

Hughes applauds the Commission's Pilot Program proposal as a necessary piece in bridging the healthcare outcomes divide in rural communities. Demand for medical services is increasing across the United States as the population both grows and ages, placing unprecedented strain on the existing framework for the delivery of such services and diminishing the efficacy of how patients are treated and cared for.[11] Physician shortages are common in both urban and rural communities, while rural communities face additional barriers such as general workforce shortages, availability of health insurance, distance and availability of transportation, stigma and privacy issues, and poor health literacy.[12] Even when these barriers are overcome, many rural hospitals lack the necessary services that would be available in larger, urban hospitals, such as obstetrics, dental, substance abuse, and mental health services.[13] In general, poorer states tend to have lower numbers of physicians per capita, increasing the difficultly of providing care in the areas needed.[14]

The Commission's Pilot Program promises to take a critical first step towards creating opportunities to increase access to and improve the quality of healthcare services throughout the country, especially in rural and remote regions. The increasing prevalence and affordability of technology solutions make it easier to deliver healthcare services in a way that is consistent with community needs and can help relieve some of the traditional pressures experienced by healthcare

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[11] *See* Hughes White Paper: Enabling Healthcare Connectivity in the United States through Satellite Broadband, GN Docket No. 16-46 (May 24, 2017) ("*Hughes White Paper*").
[12] *Ibid.*
[13] *Ibid.*
[14] For example, Mississippi is the poorest state in the United States, and ranks 49th in the number of physicians per capita. *See* Sara Heath, "Telehealth Closes Patient Care Access Gaps in Rural Mississippi" PatientEngagementHIT, Apr. 23, 2018, *available at* https://patientengagementhit.com/news/telehealth-closes-patient-care-access-gaps-in-rural-mississippi.

providers. The provision of telehealth services expands access to high-level care and closes geographic barriers experienced by patients. By matching local healthcare providers with broadband service providers, the Commission can address one of the significant barriers to telehealth adoption: many of the communities that rely, or need to rely, on telehealth services to meet the needs of their residents are situated in regions of the country that are unserved or underserved by terrestrial telecommunication networks.

Hughes supports the Commission's overall approach to the structure of the Pilot Program and the program's goals. However, Hughes urges the Commission to slightly narrow the Program and focus selected projects on those that encourage and facilitate broadband adoption, rather than new network deployment, given the short timelines and limited resources available for this program. By doing so, the projects will be able to include significantly more participants, expanding the reach of broadband-enabled healthcare and the improved health outcomes they can deliver.

Further building on this, Hughes encourages the Commission to adopt selection criteria that ensure the widest possible participation by broadband technologies, as this program is the perfect opportunity to examine the capabilities of each technology to help deliver on the promise of connected care. By ensuring the inclusion of all available technologies in the study, the Commission will receive invaluable, real-world data on what performance characteristics are actually necessary to deliver on each connected care program's mission in each part of the country, thus facilitating a more efficient and cost-effective roll out of a larger, long-term telehealth initiative.

A. THE COMMISSION'S PRIORITIES FOR THE PILOT PROGRAM SHOULD FOCUS ON ACCESS TO AND ADOPTION OF BROADBAND SERVICES FOR FACILITATING IMPROVED HEALTHCARE OUTCOMES

i. Improved Access to Broadband Services Will Facilitate Improved Healthcare Outcomes

Patient needs are the driving force for the adoption of telehealth services, and rural healthcare providers are outpacing their urban counterparts in the provision of these services, given their greater need.[15] While roughly 19 percent of the U.S. population lives in rural communities,[16] only 10 percent of physicians choose to practice in those regions.[17] As an example, a recent report revealed that in 13 of Nebraska's 93 counties, there is no primary care provider.[18] When residents of a rural community require treatment by a specialist, they often face long wait times for appointments, extensive travel, and time off work.[19] Moreover, the lack of resources available to hospitals in these rural communities has resulted in the closure of 74 hospitals since 2010,[20] and

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[15] Julia Adler-Milstein et al, "Telehealth Among US Hospitals: Several Factors, Including State Reimbursement and Licensure Policies, Influence Adoption," *Health Affairs* 33, no. 2 (2014), *available at* http://content.healthaffairs.org/content/33/2/207.full.pdf+html, p. 210.

[16] *See e.g.* Trading Economics, United States – Rural Population, *available at* http://www.tradingeconomics.com/united-states/rural-population-percent-of-total-population-wb-data.html; Kavita Patel et. al, "Transforming Rural Health Care: High-Quality, Sustainable Access to Specialty Care," Dec. 5, 2014, *available at* http://healthaffairs.org/blog/2014/12/05/transforming-rural-health-care-high-quality-sustainable-access-to-specialty-care/

[17] Ibid.

[18] Lisa Spellman, "UNMC releases rural health care workforce report" UNMC Newsroom, Apr. 4, 2018, *available at* https://www.unmc.edu/news.cfm?match=21904.

[19] Patel et al., *infra* note 16.

[20] *See e.g.* Mattie Quinn, "With Hospitals in Critical Condition, Can Rural America Survive?" Governing. Jul. 2016, a*vailable at* http://www.governing.com/topics/health-human-services/gov-rural-hospitals-critical-condition.html

another 673 are considered to be vulnerable,[21] making the options available to patients seeking in-person medical care in rural communities increasingly limited.[22]

As the Telehealth NOI notes, not all patient care requires in-person consultation, treatment, and monitoring.[23] Many of the burdens experienced by patients and healthcare providers can be alleviated by the provision of telehealth services in patients' homes. Innovative communication technologies underlying the telehealth movement are generating new approaches to deliver high-quality care in areas with even the most minimal resources and limited availability of physicians.

UC Davis, in evaluating 18 years of clinical records, found that its patients avoided nearly 5 million miles of travel and $3 million in travel expenses by being able to videoconference the treatment center in Sacramento.[24] The evaluation also found that the program was most beneficial to specialties that rely heavily on talking (such as mental health) and laboratory services (such as endocrinology), and less useful to specialties that require more physical analysis (such as orthopedics).[25] More importantly, the UC Davis evaluation found that because telemedicine was significantly cheaper and more convenient for patients, they were more likely to seek out medical

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[21] *See e.g.* "The Flickering Lights of the U.S. Rural Hospital," Nebraska Rural Health Association, Mar. 5, 2016, a*vailable at* http://nebraskaruralhealth.org/death-by-a-thousand-cuts-the-flickering-lights-of-the-u-s-rural-hospital/

[22] "Put simply, the economics are stacked against rural hospitals. As one physician observes, 'You don't have the volumes. You still have to provide the same quality. You still have to buy the same equipment. You don't have the economy of scale on the equipment, so your overhead is more and your reimbursements are less.'" (Internal citations omitted). Rick Schadelbauer, "Anticipating Economic Returns of Rural Telehealth," NTCA, Mar. 2017, *available at* http://www.frs.org/images/AnticipatingEconomicReturnsOfRuralTelehealth.pdf

[23] Telehealth NOI, at ¶¶ 3-10.

[24] Charles Casey, "Telemedicine saves patients time, money" University of California Davis, Mar. 21, 2017, *available at* https://www.universityofcalifornia.edu/news/telemedicine-saves-patients-time-money.

[25] Ibid.

care.[26] A study published in *Health Affairs* supported this finding and added that patients were also more likely to seek out medical care for conditions they would otherwise leave untreated had in-person appointments been necessary.[27]

In order to expand telehealth offerings, and to enable communities throughout the country to benefit from the improved health outcomes generated by telehealth services, each patient and healthcare facility must have access to a reliable, robust, cost-effective broadband connection over which these services can be made available. Rural, as well as urban, areas have broadband adoption issues, whether it is the inability to afford service, or a lack of broadband infrastructure to the region. This Pilot Program offers an opportunity to experiment with different configurations of broadband technologies and healthcare services in order to maximize the reach and adoption of telehealth services to improve patient outcomes and reduce costs. The results of the Pilot Program can then be paired with the Commission's decades of experience with incentivizing the deployment and expansion of broadband networks through USF funding to ensure the build-out of appropriately tailored networks that meet the demands for providing connected care throughout the country.

ii. The Commission Should Prioritize Adoption of Broadband Services over Substantial Expansion of Broadband Networks in the Pilot Program Phase

In order to successfully test the benefits of telehealth services in low-income populations, healthcare providers need to be able to provide telehealth services to these patients. One of the biggest barriers to the provision of these services is that patients do not have access to reliable, cost-effective broadband connections in their homes. As will be discussed in further detail below,

[26] Ibid.
[27] J. Scott Ashwood et al. "Direct-to-Consumer Telehealth May Increase Access to Care but Does not Decrease Spending," Health Affairs, Mar. 2017, *available at* https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2016.1130.

this is not due to an overall lack of broadband coverage nationally, but because patients find that the perceived benefits of the service do not merit the cost.

While there are still gaps in middle- and last-mile terrestrial connectivity that need to be addressed and that provide substantial benefits to the public that merit expanding broadband network coverage throughout the United States, other Commission programs are specifically designed to target that need, including the Connect America Fund programs, the Mobility Fund, and the broader Healthcare Connect Program. This Pilot Program, which is of limited duration and scope, should prioritize its limited resources to addressing the adoption issue, and finding means to incentivize vulnerable communities to adopt these necessary services in order to facilitate telehealth and other services. The valuable information gathered from this Pilot Program can then be used to guide the Commission in establishing a larger, long-term funding initiative which can undertake necessary broadband build-out and expansion, based on the delivery needs determined through consumer uptake in this Program.

B. THE COMMISSION SHOULD ENSURE THAT THE PILOT PROGRAM GENERATES A COMPLETE RECORD THAT CAN BE USED TO INFORM FUTURE FUNDING INITIATIVES

Hughes supports the Commission's proposed structure for the Pilot Program to provide up to 20 healthcare providers up to $5 million each in USF for supported broadband services to be used to deliver connected care services to eligible low-income patients.[28] Hughes agrees that the budget and scope are appropriate for this Pilot Program.[29]

The Commission should also require that the proposals include a clear explanations of the value-based care that will be provided through the proposed telehealth project. Value-based care

[28] Telehealth NOI, at ¶ 28.
[29] *Id.*

models highlight and capture the social determinants of health; lack of access to broadband is a social determinant as it precludes vulnerable populations from obtaining timely care and leads to medical escalations that drive up the costs of care for all stakeholders.[30] By including a requirement to expand on the value-based care model, the Commission will receive greater visibility into the clinical and financial gains derived from the adoption of the telehealth program.

Below, Hughes urges the Commission to make a few changes to the overall program structure, in order to maximize the amount of data the Pilot Program can provide the Commission in terms of technological capabilities and program necessities, which can be better used to inform the parameters of any larger-scale future telehealth funding initiative.

i. The Commission Should Alter the Structure of the Pilot Program to Test the Viability of Providing Telehealth Services Using Each Broadband Technology That Is Included in a Proposal to Ensure a Technology Neutral Record

Telehealth is an expansive field of services that ranges from Cloud-based patient interfaces to doctor-patient videoconferences, to at-home monitoring of vitals. For example, the University of Mississippi Medical Center already lists providers in 35 specialties on its telehealth platform.[31] The demands of each telehealth platform will vary greatly in terms of speeds, capacity, and latency, depending on the offering. This provides a unique opportunity for the Commission to encourage healthcare providers to partner with the broadband service provider that not only can provide the connectivity and coverage that they need, but also does not require additional network buildout in order to participate in the Pilot Program. It also provides the Commission with an opportunity to gather data on how different broadband technologies can contribute to the delivery of connected care services.

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[30] *See e.g.* Comments of American Medical Informatics Association, GN Docket No. 16-46 (May 24, 2017).
[31] *See* Heath, *infra* note 14.

The Commission's proposed short-duration Pilot Program of two to three years is a reasonable study length for testing telehealth services, but it effectively limits the amount of infrastructure build-out that can sensibly be undertaken as part of any project proposal. In order to amass the maximum amount of data regarding the value of a telehealth program during such a short period, each healthcare provider should select a broadband service provider that already has coverage in the region identified for study, or requires only minimal network additions, so as not to lose time waiting for, and expending limiting financial resources on, build-out that could otherwise be used providing and validating telehealth services.

However, some of the regions of the country that are most ripe for study are those that the Commission has identified as lacking access to broadband infrastructure based on the Commission's 2018 Reports: the 2018 Broadband Deployment Report and the 2018 National Broadband Map.[32] According to the 2018 Broadband Deployment Report, approximately 5.7 million Americans do not have access to either 25/3 Mbps fixed terrestrial service or 10/3 Mbps mobile LTE.[33] The Report determines that these gaps in fixed and mobile terrestrial coverage leave roughly 10.3 percent of rural inhabitants and 17 percent of Tribal land residents without access to either service.[34] This number rises to approximately 44 million people when identifying consumers who lack access to both 25/3 Mbps fixed service and 10/3 Mbps mobile LTE.[35]

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[32] *See* Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, 33 FCC Rcd 1660 (2018) ("2018 Broadband Deployment Report" or "Report"); see also 2018 Broadband Deployment Report; *see also* Commission News Release, "FCC Updates and Modernizes National Broadband Map" Feb. 22, 2018, *available at* https://docs.fcc.gov/public/attachments/DOC-349388A1.pdf ("2018 National Broadband Map") (collectively, "2018 Reports").

[33] 2018 Broadband Deployment Report, at ¶ 55.

[34] *Ibid*.

[35] This number, per the Commission's description, includes satellite broadband. *Ibid* at ¶ 54.

When determining which broadband providers to partner with for Pilot Program projects, healthcare providers will likely assess available coverage based on these Commission reports. However, relying on the 2018 Reports to assess broadband coverage is misleading and leaves consumers unaware of their actual broadband options.[36] The 2018 Reports are only current to December 2016; thus, a consumer relying on either report would not be informed that Hughes launched its HughesNet Gen5 service, providing ubiquitous Commission-defined broadband speeds, in March 2017.[37] Healthcare providers may also be wary to partner with any service providers that are not included in the 2018 Reports, as they may understandably be concerned the Commission will rely on them to determine whether their broadband partner can provide the necessary connectivity.

While the issues of keeping the Broadband Deployment Report and National Broadband Map current to the most recent Form 477 data is a matter for a different proceeding, there is a way to overcome the out-of-date information to ensure that the Pilot Program achieves its connected care goals, especially in underserved areas. The Pilot Program should be structured such that at least one pilot project is selected to test each broadband technology that applies (e.g. fiber, terrestrial mobile wireless, satellite).

By structuring the Pilot Program to ensure that a diversity of broadband technologies is included, the Commission will attain a two-fold benefit. First, a variety of broadband solutions will be demonstrated to local healthcare providers and will be able to show their ability to provide and support telehealth services.

[36] *See* Ex parte of Hughes Network Systems, LLC, WC Docket No. 11-10 (Jun. 19, 2017) ("Hughes Ex Parte")
[37] *See* Hughes Ex Parte.

Second, and perhaps more importantly, the Commission will receive a more complete record on how each technology can best support telehealth services. Telehealth is a broad classification of available services that includes remote monitoring, virtual consultations, and cloud-based recordkeeping, among many others. By ensuring the inclusion of all available broadband technologies in the Pilot Program, the Commission will have a more robust understanding of the demands for speed, bandwidth, and latency needed for the provision of telehealth services, which will enable the Commission to optimize the deployment of resources towards an eventual larger-scale, technology neutral, telehealth funding initiative.

ii. The Commission Should Structure the Pilot Program to Emphasize Adoption of Existing Broadband Services over Deployment of New Infrastructure

One of the stark conclusions that can be drawn from the 2018 Reports is that, while broadband service providers have successfully deployed networks to cover the vast majority of the U.S. population, there remains a substantial gap between access and adoption rates.[38] While densification, competition, and perfect ubiquity are the ultimate goals of the Commission's high-cost programs such as the Connect America Fund, or even the Healthcare Connect Fund, they should not be the primary drivers of a pilot program focused on exploring the provision of telehealth services outside the institutional setting. In order to improve healthcare outcomes through the provision of telehealth services at home, the first step is to convince consumers that the service, and broadband writ large, merits adoption.

A pilot program is meant to provide an organization with a platform to test logistics, prove value, and identify deficiencies prior to engaging in a full scale commitment. The Commission has a significant amount of experience incentivizing organizations to deploy and expand broadband networks through the award of USF funds. This Pilot Program provides the Commission with an

[38] 2018 Broadband Deployment Report, at Tables 4 and 12.

opportunity to focus its limited resources on tools to improve broadband adoption through the proffering of at-home healthcare solutions, which can later be incorporated into a larger-scale, long-term USF initiative to ensure ubiquitous, national access to these services through broadband deployment.

The Pilot Program should to be structured to encourage healthcare providers to select service providers who have network coverage in the region identified for their trial. By selecting a broadband provider with an established network, and who require minimal, if any, additional network build-out, the USF funds allocated to each project can be ascribed to the costs of any equipment needed to access the broadband network, subscribe to the service, or provide the connected care solution. In eliminating expensive last-mile and other infrastructure build-outs, more funds are available to the trials themselves, enabling greater participation and larger data sets.

iii. Requiring That Participating Broadband Service Providers Be Eligible Telecommunications Carriers Will Unnecessarily Stifle Participation

The Commission should not limit the participation of eligible broadband service providers in the Pilot Program to eligible telecommunication carriers ("ETCs") as it would undermine, the goal of increasing broadband deployment in underserved areas.[39] First, as discussed above, the Pilot Program, given its extremely short duration, should be focused on increasing adoption of available broadband services rather than expanding deployment of new infrastructure. Deploying networks takes considerable amounts of time and planning, not to mention risks of delay, which can severely impact the amount of relevant data that can be gathered from this program. For the purposes of this short-term study, the Pilot Program projects should focus on adoption, not

[39] Telehealth NOI, at ¶ 37.

significant, new deployments;[40] making sure consumers can use the services available is more important than expanding the networks at their expense for the purposes of this short duration Program.

Second, an ETC requirement would be incongruous in a pilot program focused on broadband services. The Commission recently concluded in the *Restoring Internet Freedom Oder* that broadband is an information service.[41] It makes little sense to expect an information service provider to assume telecommunications carrier obligations to participate in this program. Moreover, requiring operators to undertake the regulatory and financial burdens of becoming an ETC to potentially participate in a limited number of project spots will discourage participation by potentially valuable service partners, especially in rural and tribal communities where connectivity options are limited.

iv. The Commission Should Include a Mix of Urban and Rural Communities in the Program, with an Emphasis on Rural

In order to successfully meet its goals, the Commission should seek to cast as wide a net as possible when selecting projects to participate in the Pilot Program: they should be diverse in technology, services rendered, populations served, and communities reached. However, when striking that balance between urban, suburban, and rural populations, consideration must be given to which communities are more likely to benefit most from telehealth services. Urban populations are significantly more likely to have adopted broadband technology and rely on broadband-supported services for daily conveniences, including healthcare services.[42] As the underlying

[40] Adoption of fixed terrestrial broadband, at 25/3 Mbps, was only 53.3 percent across the United States at the end of 2016. *Ibid* at Table 11.
[41] *Restoring Internet Freedom,* Declaratory Ruling, Report and Order, and Order, 33 FCC Rcd 311 (2018).
[42] Andrew Perrin, "Digital gap between rural and nonrural America persists" PEW Research, May 19, 2017, *available at*: http://www.pewresearch.org/fact-tank/2017/05/19/digital-gap-between-rural-and-nonrural-america-persists/.

objectives of the Pilot Program are to increase adoption of broadband services and improve healthcare outcomes in low-income and rural populations, the majority of the projects should be geared towards these population groups.

v. The Commission Should Not Set Performance Standards, But Rather Permit Projects to Demonstrate the Efficacy of Different Broadband Services in the Delivery and Adoption of Telehealth Services

The purpose of the Pilot Program is to "explore how to promote the use of broadband-enabled telehealth services and applications by low-income families and low-income veterans."[43] In order for this exploration to bear fruit, the Commission should not adopt performance standards for broadband services. Not all telehealth services will require the fastest speed, highest capacity, lowest latency broadband service available on the market. By refraining from setting performance standards at this stage, the Commission will empower healthcare providers to seek out the most appropriate broadband solutions for the telehealth service they are trying to provide. In appropriately matching the broadband service to the telehealth solution, the project can manage the costs of broadband adoption to consumers, and therefore increase the likelihood of adoption. For example, if the project proposes to provide consumers with a Cloud-based interface to manage daily medical recordkeeping, the patient will need a broadband connection to access the Cloud, but they will not require very high speeds or low latency. The data gathered over the course of the twenty pilot projects can be used to better guide the Commission in setting real-world performance standards for any larger-scale future telehealth funding initiatives based on actual demands for speed, capacity, and latency.

[43] Telehealth NOI, at ¶ 11.

C. THE COMMISSION SHOULD SEEK ASSESSMENT CRITERIA FROM BOTH HEALTHCARE PROVIDERS AND BROADBAND PROVIDERS IN ORDER TO EVALUATE THE EFFECTIVENESS OF EACH PROJECT

In order to accurately assess the effectiveness of each project, the Commission should seek evaluation criteria from both the healthcare and broadband providers. The availability of data from both provider groups across the twenty projects will enable the Commission to draw correlations between the provision of telehealth services and the healthcare outcomes.

Assessments from healthcare providers and broadband providers will also be of independent value and can be used to make adjustments for any future funding initiatives or other unrelated studies. Criteria for evaluating healthcare outcomes should be specific to the project proposed, but should be determined in advanced and compared against a control group. Healthcare providers should include analysis of cost savings and wait times. They should also disclose whether they have receive additional inquiries, withdrawals, or any other participation-based feedback.

Assessments of the broadband-related goals should include the following:

1. Cost: the monthly subscription cost to each household (amount of project subsidy to consumer); cost of equipment; cost of installation; cost of any additional build-out required by provider to enable project;

2. Adoption: how many patients actually subscribed to the broadband service; how many terminated their service before the project was complete; how many kept the service once the project was complete; how many added additional services once they had subscribed; and

3. Time-to-deployment: how long did it take to get each patient up and running; was any additional build-out required, and if so, what was the delay.

Each project should have two control groups: patients with the identified condition who are informed of the telehealth initiative but are not offered the subsidized rate, and patients who are not offered access to the telehealth initiative.

IV. CONCLUSION

The Commission's Connected Care Pilot Program is a critical first step towards expanding adoption of broadband-enabled healthcare services to millions of Americans. By making a few modifications to the structure of the program to ensure that the Pilot Program includes all broadband technologies that are included in proposals, prioritizes broadband adoption over buildout, and defers adopting performance standards to future funding initiatives, the Commission can ensure a more robust study that will yield more valuable insight into the connectivity needed to facilitate connected care everywhere.

Respectfully submitted,

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